

Socio-Economic Changes among Farmers Practicing Organic Farming in Wardha District: A Critical Analysis

Nikita Shivhari Rokde, Research Scholar, Department of Commerce, C.P and Berar ES College Mahal, Nagpur
Dr. Reeta V. Sontakay, Research Supervisor, Department of Commerce, C.P and Berar ES College Mahal, Nagpur

Abstract

The organic farming has become a relevant alternative agricultural activity that supports sustainable development, nature protection, and fortification of the living standards of the rural population. This is because there is a rising awareness among farmers of the need for a healthy soil and a claimed reduction in expenditure on farming inputs, various government initiatives and an increased demand for organic produce in the market, which has been an increasing trend in the Wardha District in recent years. The present study 'Socio-Economic Analysis of the change of Socio-Economic status of the farmers involved in organic Farming in Wardha District' is aimed at an analysis of the Socio-economic changes in the farmers of the district involved in organic farming. This study looks into these changes in terms of income status, employment, expenditure trend, standard of living, awareness of education, health, and social involvement of organic farmers. The study makes use of the primary and secondary data. Primary data was gathered using structured questionnaires, interviews and field observation methods, with selected organic farmers from various villages of Wardha district. Other secondary data were gathered from government reports, publications of the agricultural departments, research journals, books and on-line resources on organic agriculture and rural development. The study uses descriptive and analytical research approaches to review the socio-economic results of the organic agriculture techniques. Based on the outcomes of the study, it can be concluded that Organic farming positively impacted on the Socio-Economic Status of the farmers as it has helped them to reduce their reliance on chemicals, promote soil fertility and better sustainability of the farming practices. For many farmers this resulted in higher profits as premium prices were paid for the organic products and input costs were reduced. Socially, organic farming promoted community involvement, environmental protection awareness and healthy lifestyles for the farming families. The study also reveals some constraints including insufficient certification facilities, poor market access, lower productivity in the transition period, inadequate technical skills, and inadequate financial support. The study finds that the adoption of organic farming in Wardha district has huge potentiality to uplift the socio-economic condition of farmer if appropriate policy, training and market infrastructure and awareness will be created by the government side. The study offers important policy-relevant insights for policymakers, agricultural institutions, and rural development agencies involved in rural development and the promotion of sustainable agriculture.

Keywords: Organic Farming, Socio-Economic Development, Sustainable Agriculture, Farmers, Rural Development, Wardha District, Agricultural Sustainability.

Introduction

Agriculture has always been the backbone of the Indian economy, providing livelihood opportunities to a large section of the rural population. Farming in an agrarian society such as India, besides helping economic activities, also impacts the life of the rural people being an integral part of their social, economic & cultural life. In recent decades, however, reliance on high inputs of chemical fertilizers, pesticides, and use of modern intensive agricultural practices has led to various environmental and economic concerns, including soil degradation and reduced fertility, water pollution, increased field costs, and farm worker and consumer health problems. Such issues have prompted policy makers, researchers, and farmers to seek sustainable options in agriculture, with organic farming being one of them widely considered as helpful and eco-friendly option.

Organic farming is the farming system that uses no synthetic fertilizers, pesticides, GMOs or chemical growth regulators, and environment-friendly method like composting, crop rotation, green manure, bio-fertilizer and biological pest control. Very first principle of organic farming is the achievement of ecological balance, saving biodiversity, enhancing soil health and making sustainable agricultural production. Apart from the environmental advantages, organic farming is also seen as a viable option to improve the socio-economic condition of the farmer with respect to reduction in the input cost, enhancement of market value of the produce, improvement in long term productivity of the farm.

The concept of organic farming is becoming more significant especially in the state of Maharashtra as people acquire the knowledge about sustainable farming techniques and harmful impact of using chemical-based farming system in Wardha District. Wardha district is significant in terms of the history of agriculture in India due to its connection with Gandhian philosophy, self-reliance and sustainable living practices in rural areas. The district is mainly under agriculture and the important crops grown here include cereals, vegetables, pulses, soybean and cotton. Recently, many farmers of Wardha have adopted a gradual change in the method of farming to the organic way to enhance the fertility of the soil, crop cost cutting and getting a better price in the organic market and home market for their produce.

Since the introduction of organic farming, several changes could be observed in the farmers' life. From a socio-economic point of view, it has affected farm production, farm income, farm expenditure, employment, savings and various financial variables of farming households. As they involve less in expensive chemicals, farmers under organic methods of farming require less debt to manage and also, they become more profit oriented with time. Socially, organic farming is playing an increasing role in the spread of awareness within the rural population on issues like environmental protection, health awareness, education, community involvement and sustainable lives. Organic farming also ensures incentivization for collective farming, farmer-producer groups, extensions of farmer training, and awareness campaigns, etc., which ultimately leads to a better social solidarity and rural development.

Though this, there are also some obstacles in the way of organic farming, which hinders many farmers from taking this farming process forward. The first few years of transitioning from conventional to organic agriculture can be challenging for farmers, both in terms of productivity and finances. Some of the key challenges faced by the organic farmers in Wardha district include limited availability of organic certification facilities, poor marketing infrastructure, lack of technical knowledge, inadequate government policies and support, and inconsistent market demand. Thus, a critical examination of the actual impact of organic farming on the socio-economic status of the farmers is crucial and the question on how long these benefits are continued becomes important for consideration in the long run.

The present study entitled, "Socio-Economic changes among farmers engaged in organic farming in Wardha district: A critical analysis" endeavour in this direction to find out the impact of organic farming over the socio-economic status of the farmers at Wardha district. The study aims to gain insight into the income dynamics after shifting to organic farming, employment creation, living conditions, health perception, learning activities, and social engagement of the farmers involved in organic farming. Also, it is intended to learn about the opportunities and constraints of organic agriculture and to assess the performances of the support systems already available from the government and the agricultural organisations.

This study is important as it brings to the fore understanding of the role of organic farming in the development of sustainable rural economy and its impact on farmers' lifestyle. The results of the study could contribute to effective strategies developed by policy makers, agriculture experts, researchers and science and technology development organizations to promote organic farming systems and enhancing rural economies. Moreover, the study adds to a body of literature pertaining to sustainable agriculture and Socio-economic changes in rural India.

Literature Review

Organic farming has attracted great world interest as a sustainable form of agriculture that embraces environmental preservation, economical success and social welfare. Willer et al. (2022) report that the global organic agriculture sector experienced steady growth over the years in terms of area under cultivation, number of producers and demand for organic products, suggesting a clear trend towards sustainable food systems in developed and developing countries. This surge is due to greater awareness among consumers and policy makers of the negative environmental and health consequences of traditional farming practices that rely heavily on chemicals.

The beginnings of organic farming are present in early movements for agricultural reform which were opposed to industrial farming methods. Vogt (2007) and Lockeretz (2007) make it clear that organic farming came into being as a remedy to the environmental damage created by synthetic fertilizers and pesticides, with special attention paid to the state of ecological balance, soil health and traditional knowledge in farming. Organic farming gradually became a system of well-defined principles, enabling it to undergo a process of certification, research and development, and finally the establishment of international institutions and organizations that would oversee agricultural production and promote it alongside conventional farming.

On a natural aspect, organic farming is generally recognized because of their positive effects on soil fertility, biodiversity and the well-being of the ecosystem. Mäder et al. (2002) reported soil biological activity and long-term soil fertility are significantly better for organic farming systems than for conventional systems. Earlier, Bengtsson et al. (2005) in a meta-analysis showed that organic farming also could help biodiversity, yield better numbers of good insects and beneficial soil organisms, these enhancing the ecological stability of agricultural landscapes.

Furthermore, organic farming is also an important measure to minimize pollution in the environment. Over-use of nitrogen-based fertilizers in conventional agricultural practices causes nitrate leaching, water table pollution, degradation of the watershed, and eutrophication of waterways, as stressed by Di et al. (2002). Organic farming decreases such risks, by using natural nutrient cycles and managing soil in an organic way. In addition, non-chemical methods used in managing weeds is effective in organic systems; and decreases reliance on herbicides and works to maintain balance in the ecological system (Bond and Grundy 2001).

Pest management is also an important consideration in an organic farming system. Zehnder et al., (2007) say that through the practice of organic farming, integrated pest management techniques can be applied, such as biological control agents, habitat management, and crop diversification, which can help maintain pest populations below economic thresholds without the use of chemical pesticides. These methods enhance sustainability and concern for the environment over the long-term.

A large amount of research on productivity has been carried out on organic farming, yielding mixed conclusions. Results reported by Seufert et al. (2012) and De Ponti et al. (2012) indicate that yield is typically lower in organic production than in conventional production, but the difference can differ for various crops, practices and environmental conditions. Although yields are not the same as conventional farming, the premium prices and lower input costs for organic farming may make it more cost-effective for farmers in the long term.

Bourn and Prescott (2002) commented that, on a nutritional content or food quality basis, there might be some benefits to organically grown food, as there are fewer pesticide residues and a better consumer perception of safety and quality. The consumer demand for chemical-free food has further incentivised the market for organic agriculture at international level though there are some debates on nutritional differences between organic and conventional food.

In their agricultural research and development work, Watson et al. (2008) point out, innovative and scientific work is a necessary element for the success of an organic production system, as

it helps to resolve issues of nutrient management, pest control and productivity optimization. Research effort in organic farming has grown many folds with applications aimed at sustainability, efficiency and resilience of farming systems.

The socio-economic side of the organic farming is also of importance. In developing countries, Badgley et al (2007) state that organic agriculture could play a role in enhancing food security, bettering the livelihoods of rural communities. Organic farming can help farmers improve their income stability and lessen the impacts they face if they were to lose access to external inputs or shortfalls in market opportunity.

The reviewed literature overall indicates that organic agriculture is a multidimensional agriculture practice that has an environmental, economic and social dimension. While it has a definite environmental benefit in terms of sustainability, biodiversity conservation and health benefits, some of its disadvantages include yield to variability, certification, market access and knowledge gaps. The socio-economic analysis at the regional level successfully build on such findings and could be employed to explore the socio-economic result of the practice of organic farming especially for the farmers of Wardha District where there is spread of agriculture transformation towards sustainability

Objectives of the Study

1. To examine the impact of organic farming on the economic conditions of farmers in Wardha District with respect to income, cost of cultivation, savings, and overall financial stability.
2. To analyze the social changes experienced by farmers practicing organic farming in Wardha District, particularly in terms of education, health awareness, social participation, and quality of life.
3. To identify the major opportunities and challenges faced by organic farmers in adopting and sustaining organic farming practices in Wardha District.

Hypothesis of the Study

Null Hypothesis (H_0): There is no significant relationship between the adoption of organic farming practices and the socio-economic conditions of farmers in Wardha District, and farmers do not face significant differences in opportunities and challenges in adopting and sustaining organic farming.

Alternative Hypothesis (H_1): There is a significant relationship between the adoption of organic farming practices and the socio-economic conditions of farmers in Wardha District, and farmers experience notable opportunities as well as challenges in adopting and sustaining organic farming practices.

Research Methodology

The present study “Socio-Economic Changes among Organic Farmers in Wardha District, descriptive and analytical research design is used. Its main purpose is to analyse the socio-economic consequences of organic agriculture for farmers and to gain insight into obstacles and opportunities of organic agriculture in the Netherlands. Primary and secondary research sources have been employed to assure the broadness and depth of understanding about the research problem. Primary data is collected from selected 60 organic farmers of Wardha district using a structured questionnaire, personal interviews and field observation technique. The survey consists of questions about the economic income of the survey, the expenses of the cultivation activity, savings sprees, living standards, social participation, awareness levels, and cultivation practices. Secondary information is collected from books, research literature, Government Reports, Agri-Department publications and official Websites of credible sources relevant to the subject of Organic Farming and Rural Development. A purposive sampling technique has been used to choose those respondents who are actively involved in organic farming in various villages of Wardha district for sampling. The size of the samples has been fixed keeping in mind the availability and access of organic farmers in the study area. The data

collected have been systematically classified, tabulated and analyzed using appropriate statistical tools like percentage analysis, mean and comparative analysis have been used to interpret the differences in socio economic aspects before and after the application of organic farming practice. Qualitative analysis is also adopted in the study to understand the perception, experiences and challenges of the farmers under study in respect to the adoption of organic farming. The studies employ an empirical method to assess the effects of organic farming on farmer's socio-economic situation; and to derive meaningful and relevant inference that can help the policy makers, researchers, and agricultural development entities to encourage sustainable agriculture.

Descriptive Statistics of Socio-Economic Variables of Organic Farmers

Study area: Wardha District

Sr. No.	Socio-Economic Variable	Mean	Standard Deviation	Minimum	Maximum
1	Annual Household Income (₹ in lakhs)	3.85	1.12	1.50	7.20
2	Cost of Cultivation (₹ per acre)	0.92	0.35	0.40	1.80
3	Net Profit from Farming (₹ in lakhs)	2.10	0.88	0.60	4.50
4	Farming Experience (Years)	12.6	6.40	3	35
5	Social Participation Index (Score)	6.8	2.10	2	10
6	Health Awareness Level (Score)	7.2	1.85	3	10
7	Training Exposure in Organic Farming (No. of programs attended)	2.4	1.30	0	6

The result only presents descriptive details of socio-economic parameters for the farmers of organic farming in Wardha District which gives some important information about the economic and social change in the life of organic farmers. The mean ann. household earning of the farmers demarcates a moderate level of their economic gain, indicating a positive contribution of the organic farming to their economic livelihoods with some variations among farmers as visible in the standard deviation. The farmers involved seem to be gaining benefit from reducing dependence on inputs and external resources, such as chemical inputs, which is among the main benefits of organic agriculture, as reflected in the cost of cultivation showing relatively low expenditure.

The net profit would also indicate organic farming would improve profitability over time, particularly for those farmers who have developed market linkages with organic produce. However, the disparities in profit margins suggest that not all farmers are enjoying equal economic returns and this is mainly attributed to production size differences, market availability and technical skills. Both new and experienced farmers had positive experience data of farming using the organic approach, which implies that organic farming techniques are being diffused gradually across age and experience groups.

In terms of social participation, the social participation index suggests moderate-high level participation in the communities (in community-based activities, farmer groups and cooperative activities). This indicates that organic agriculture is not only an enterprise, but also a tool for further development of the farmers' social networks and joint action. The average score of health awareness is also relatively high level which reflects that the level of awareness on chemical-free consumption, food safety and health-related issues of farmers conducting organic farming is comparatively high, which is in line with the core values of organic farming. Training exposure levels indicate that although significant percentages of farmers have received sufficient institutional supports and trainings, a significant percentage has not

adequately received technical guidance. The lack of training and capacity building could become a constraint to the wide uptake and quality implementation of organic farmings.

The general assessment through descriptive analysis indicates that the organic farming has positively influenced the economic and social aspects of life of farmers in Wardha District. Variability, however, across all indicators means there is not necessarily even distribution. The call for this implies scope for better policies, faster developing markets in organic agriculture, and more training policies for the inclusion and sustainability of the socio-economic development of organic farmers.

Pearson's Correlation Coefficient

Study Area: Wardha District

Correlations

Variables	Income Level	Cost of Cultivation	Net Profit	Social Participation	Awareness Level	Adoption of Organic Farming
Income Level	1	-0.62**	0.78**	0.55**	0.49**	0.71**
Cost of Cultivation	-0.62**	1	-0.58**	-0.41**	-0.36*	-0.60**
Net Profit	0.78**	-0.58**	1	0.52**	0.47**	0.80**
Social Participation	0.55**	-0.41**	0.52**	1	0.63**	0.66**
Awareness Level	0.49**	-0.36*	0.47**	0.63**	1	0.69**
Adoption of Organic Farming	0.71**	-0.60**	0.80**	0.66**	0.69**	1

According to the farmers study parameters of wardha district, the relationship between the adoption of organic farming and various socio-economic parameters has been done by using pearson correlation analysis which revealed that the result of the study was statistically significant. The results reveal that there is a high positive correlation between income level and the extent of the adoption of organic farming ($r = 0.71$), indicating that farmers with implemented organic farming tend to have a higher income than those who are not organic farmers. Likewise, a highly positive correlation exists for net profit ($r = 0.80$) indicating that organic farming can make a significant contribution to higher profitability, primarily because of a decrease in the reliance from expensive chemical inputs and higher premiums for organic products.

The analysis further reveals that social participation ($r = 0.66$) has a positive correlation with organic agriculture practice among the farmers. This implies that organized farmers, people attached to farmer groups/community groups and collective farming practices are more likely to practice organic agriculture than the rest of the farmers. This could be explained by the knowledge networking and cooperative systems used in organic farmings. Moreover, there was a positive correlation with "awareness level" ($r = 0.69$), meaning that farmers who were more aware of environmental sustainability, degree of awareness of health issues and how to implement modern organic methods in their farms were more inclined to adopt and continue organic practices.

In contrast, there is a strong negative correlation between organic cultivation adoption and cost of cultivation ($r = -0.6$) such that the higher the adoption, the lesser the cost of cultivation. The reduction is largely because of the reduced reliance on chemical fertilizers, pesticides, and external inputs, and their substitutes like organic inputs like compost, bio-fertilizers, or natural

methods of pest control measures. Economically and socially, this is seen in general terms of relationships, which clearly show a positive effect of organic farming on both of these aspects of the farmer's life.

The results confirmed the alternative hypothesis (H_1) that there is “significant relationship between the adoption of the organic farming practices and the socio-economic condition of the farmer 2” of the Wardha district. In addition, the results emphasize that not only could organic farming positively contribute to the economy (income and profit) but it also could increase the social involvement of the farmers and their awareness and at the same time, the expenses of the cultivation process could be reduced. However, the differences in the strength of the correlation also suggest that the benefits of organic farming are not a one-size-fits-all approach, so external factors like access to markets and market training, land holdings and institutional support are also relevant.

Overall Conclusion

This is the present study, entitled 'Socio-Economic changes among the Farmers engaged in Organic farming in Wardha District borates on a critical analysis of the influence of organic farming in the socio-economic situation of farmers of the study area. From the study findings, it could be confirmed that the socio-economic status of the farmers is significantly affected by the practice of organic farming both positively and negatively. The results are clear and its correlation with the adoption of organic farming practices with the condition of income level, net profitability, social participation and awareness of health and environmental sustainability is positive.

The findings of this statistical analysis, which culminated with the determination of the relation between variables using Pearson's correlation, reveal that there is a significant relationship between the use of organic farming and the most important socio-economic variables. Additionally, farmers who are engaged in organic farming tend to have lowering dependency on chemical inputs which helps farmers to reduce the cost of cultivation, thereby minimizing the losses experienced in the long term. Organic farming, in the meantime, has had positive effects on social relationships, collective organizations and farmer and training group involvement, thereby reinforcing rural social frameworks.

But the study also shows there are not equal gains from organic farming for all farmers. Structural and operational problems are indicated by inequalities in the pattern of income gains and inequalities in level of productivity and's market access. The potential of the organic farming in the region is still not exploited due to challenges facing organic farming in the region, including lack of adequate certification facilities, lack of sufficient marketing channels, technical skills that still need to be improved, and lack of institutional support.

In spite of these problems, the available data indicate that there is considerable potential for organic farming as a farming method which can contribute to the sustainable development in economic as well as social aspects of farmers in Wardha District. The study indicates that, under optimal policy support, implementation of effective training activities, improvement of infrastructure, facilitation of market integration and access, organic farming has a significant role to play in achieving sustainable rural development in the long run and improve the livelihood of the farmers.

References

1. Badgley, C., Moghtader, J., Quintero, E., Zakem, E., Chappell, M. J., Aviles-Vazquez, K., Samulon, A., & Perfecto, I. (2007). Organic agriculture and the global food supply. *Renewable Agriculture and Food Systems*, 22(2), 86–108. <https://doi.org/10.1017/S1742170507001640>
2. Bengtsson, J., Ahnström, J., & Weibull, A.-C. (2005). The effects of organic agriculture on biodiversity and abundance: A meta-analysis. *Journal of Applied Ecology*, 42(2), 261–269. <https://doi.org/10.1111/j.1365-2664.2005.01005.x>

3. Bond, W., & Grundy, A. C. (2001). Non-chemical weed management in organic farming systems. *Weed Research*, 41(5), 383–405. <https://doi.org/10.1046/j.1365-3180.2001.00246.x>
4. Bourn, D., & Prescott, J. (2002). A comparison of the nutritional value, sensory qualities, and food safety of organically and conventionally produced foods. *Critical Reviews in Food Science and Nutrition*, 42(1), 1–34. <https://doi.org/10.1080/10408690290825439>
5. De Ponti, T., Rijk, B., & Van Ittersum, M. K. (2012). The crop yield gap between organic and conventional agriculture. *Agricultural Systems*, 108, 1–9. <https://doi.org/10.1016/j.agsy.2011.12.004>
6. Di, H. J., & Cameron, K. C. (2002). Nitrate leaching in temperate agroecosystems: Sources, factors and mitigating strategies. *Nutrient Cycling in Agroecosystems*, 46, 237–256. <https://doi.org/10.1023/A:1021471531188>
7. Lockeretz, W. (Ed.). (2007). *Organic farming: An international history*. CABI Publishing.
8. Mäder, P., Fließbach, A., Dubois, D., Gunst, L., Fried, P., & Niggli, U. (2002). Soil fertility and biodiversity in organic farming. *Science*, 296(5573), 1694–1697. <https://doi.org/10.1126/science.1071148>
9. Seufert, V., Ramankutty, N., & Foley, J. A. (2012). Comparing the yields of organic and conventional agriculture. *Nature*, 485(7397), 229–232. <https://doi.org/10.1038/nature11069>
10. Vogt, G. (2007). The origins of organic farming. In W. Lockeretz (Ed.), *Organic farming: An international history*. CABI Publishing.
11. Watson, C. A., Walker, R. L., & Stockdale, E. A. (2008). Research in organic production systems—Past, present and future. *Journal of Agricultural Science*, 146(1), 1–19. <https://doi.org/10.1017/S0021859608007592>
12. Willer, H., Trávníček, J., Meier, C., & Schlatter, B. (2022). *The world of organic agriculture: Statistics and emerging trends 2022*. Research Institute of Organic Agriculture (FiBL) & IFOAM Organics International.
13. Zehnder, G., Gurr, G. M., Kühne, S., Wade, M. R., Wratten, S. D., & Wyss, E. (2007). Arthropod pest management in organic crops. *Annual Review of Entomology*, 52, 57–80. <https://doi.org/10.1146/annurev.ento.52.110405.091337>